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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,522	05/23/2001	Yuanjie Chen	1005-0024	9860

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EXAMINER

HO, DUC CHI

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,522

Applicant(s)

CHEN, YUANJIE

Examiner

Duc C Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-27 and 37-46 is/are allowed.
- 6) ☒ Claim(s) 1-21, 28-36, 47 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4,9,10.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The IDS filed on 6-17-03, numbered "7" was recorded in the contents of the file wrapper. However, the form PTO-1499 is not found, please check the record, and send its replacement in for supplemental IDS consideration.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-21, 28-29, 31-36, and 47-48 are rejected under 35 U.S.C. 102(e) as being anticipated by McGhee (US 5,999,540-in record).

Regarding claim 1, McGhee discloses a rate adaptive XDSL communication system and method. As shown in fig. 1, system 10 comprises an XDSL termination unit 12 communicating across an XDSL link 14. The unit as an ADSL modem could locate at both ends and communicates across the link 14, for example, at a telephone system central office or other local loop termination point, and therefore, the system 10 inherently enables simultaneous communication or bi-directional communication, see col. 2, lines 32-49.

selecting a training subset (the XDSL equipment selects training parameters including an provisioned rate, receiver gain and signal-to-noise ration, see col. 3, lines 38-51) *of less than all signal elements based on those of the signal elements employed in one or more recent data transmissions* (the selected parameters are inherently less than the trained parameters in step 46, fig. 4, see col. 1, lines 38-57);

transmitting, during a training interval, substantially only the signal elements of the training subset (the XDSL equipment inherently operates to transmit at current rate-step 52-fig. 4, according to the selected parameters at provisioned rate, in which the operation at current rate corresponds to that of a training interval, see col. 3, lines 52-61);

Regarding claim 2, the processor 15-fig. 1 retrieved stored information from the rate adaptive data tables 20s for setting the data rate across the XDSL link.

Regarding claims 3, and 16, the table 20 inherently includes encoded information associating with the training parameters for setting up the trained baud rate.

Regarding claims 5, and 31 the unit 12-fig. 1 can be an ADSL modem located at either a central office or at a remote terminal, therefore, it inherently includes a transceiver.

Regarding claim 6, the unit 12-fig. 1 can be an ADSL modem located at either a central office or at a remote terminal, see col. 2, lines 32-49

Regarding claim 7, the unit 12-fig. 1 can be an ADSL modem located at either a central office or at a remote terminal, see col. 2, lines 32-49

Regarding claim 7, the unit 12-fig. 1 can be an ADSL modem located at either a central office or at a remote terminal, see col. 2, lines 32-49

Regarding claim 8, McGhee's system is capable of being configured as an ADSL configuration.

Regarding claims 9, and 33, the unit 12-fig. 1 can be implemented at a termination point, therefore, the communication channels of the link 14-fig. 1 inherently includes a digital subscriber loop.

Regarding claim 10, the Rx gain and SNR at step 46-fig. 4 are information from previous connection.

Regarding claim 11, the selected trained parameters at step 46-fig.4 used for achieving a desired bit error rate.

Regarding claims 12, and 36, the received signal across the XDSL link 14-fig. 1 inherently includes a received training signal.

Regarding claims 13, 15, and 28, these claims have similar limitations as claim 1. Therefore, they are rejected under McGhee for the same reasons set forth in the rejection of claim 1.

Regarding claim 14, the XDSL link should be a twisted pair copper wire telephone line.

Regarding claim 20, the link 14 is inherently a bi-directional channel, which can be organized a plural sub channels.

Regarding claim 21, the selected current rate (the tone subset limiting) is a function of gain to accommodate the change of the link 14-fig. 1.

Regarding claim 17, as known in the ANSI for ADSL standard, training typically consists of adjusting to existing condition in the communications connection, such as amplitude response, delay distortions, echo characteristic, etc. During normal data transmission mode, the

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modulation used in ADSL is QAM. The data bit are mapped to a series of symbols in the I-Q complex plane, and each symbol is used to modulate the amplitude and phase of one of the multiple tones, or carriers.

In McGhee the tones inherently employed as a function of baud rate and recorded in RAD tables 20-fig. 1. The train at current rate reflects the claimed limitation "one or more encoding of tones previously employed for data transmission".

Regarding claim 18, the selected current rate in the same direction is likely to be used in previous data transmission.

Regarding claim 19, the system of McGhee is capable of using the trained selected rate which is likely a function of both tones and bit allocations in the empirical data.

Regarding claim 22, the claim has similar limitations as claim 1. Therefore, it is rejected under McGhee for the same reasons set forth in the rejection of claim 1. Please see also the rejection of claim 5.

Regarding claim 29, the memory 18-fig. 1 is the data store that couples to RAD tables (training signal generator) to supply the stored prior connection information.

Regarding claim 32, the claim has similar limitations as claims 6-7. Therefore, it is rejected under McGhee for the same reasons set forth in the rejection of claims 6-7.

Regarding claim 34, the selected current rate in one of the RADs-fig. 1 that the XDSL equipment operates depends on a plurality of sets, in which each includes receiver gain and SNR of the empirical data (the stored prior connection information).

Regarding claim 35, the selected current rate (the subset selection by the training signal generator) is a function of gain to accommodate the change of the link 14-fig. 1.

Regarding claim 47, the claim has similar limitations as claim 1. Therefore, it is rejected under McGhee for the same reasons set forth in the rejection of claim 1. The transceiver is inherently included in the unit 12.

Regarding claim 48, the table 20-fig. 1 stores the previous connection information.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGhee, in view of Grube et al. (US 5,533,008-in record), hereinafter referred to as Grube.

Regarding claim 4, McGhee discloses all claimed limitations, except the signal elements include tones in accordance with a DMT modulation scheme.

Grube discloses a method and apparatus for providing a communication system infrastructure. The communication system utilizing DMT technology to couple a primary site 102-fig. 8 to a plurality of secondary sites (104-108). Infrastructure control channels are established in the manner of obtaining training signal from the outbound and the inbound control channels, in which the training signal is a DMT symbol comprised of a plurality of signals modulated on the each of the carrier channels having a

constant magnitude, see col. 13, lines 49-65.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ a DMT modulation technique taught by Grube into the system of McGhee in order to provide significant advantages over conventional DSL systems, since the DMT modulation scheme provides greater noise immunity, and flexibility in data rates than competitive modulation techniques.

Regarding claim 30, the claim has similar limitations as claim 4. Therefore, it is rejected under McGhee-Grube for the same reasons set forth in the rejection of claim 4.

Allowable Subject Matter

6. Claims 22-27, 37-41, and 44-46 are allowed.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chow et al. (US 6,408,033); Bingham (US 5,575,612); Heidari et al. (US 6,718,019); Linz et al. (US 6,611,564); Long et al. (US 6,628,704); Balachandran et al. (US 6,324,628); Hendrichs et al. (US 6,587,502); Kapoor et al. (US 6,516,027) are cited to show selectable training signals based on stored previous connection information for DMT-based system, which is considered pertinent to the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (703) 305-1332. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (703) 308-6602.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Patent Examiner



Duc Ho

06-30-04